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Organising Water: The Hidden Role of Intermediary Work

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ABSTRACT: The increasingly complex challenges of making water management more sustainable require a critical and detailed understanding of the social organisation of water. This paper examines the hitherto neglected role that 'intermediary' organisations play in reshaping the relations between the provision and use of water and sanitation services. In response to new regulatory, environmental, social, and commercial pressures the relationships between water utilities, consumers, and regulators are changing, creating openings for both new and existing organisations to take on intermediary functions. Drawing on recent EU-funded research we provide the first systematic analysis of intermediary organisations in the European water sector, examining the contexts of their emergence, the ways they work, the functions they perform, and the impacts they can have. With a combination of conceptual and empirical analysis we substantiate and elaborate the case for appreciating the often hidden work of intermediaries. We caution, however, against over-simplistic conclusions on harnessing this potential, highlighting instead the need to reframe perspectives on how water is organised to contemplate actor constellations and interactions beyond the common triad of provider, consumer, and regulator.

KEYWORDS: Intermediary, water services, institutional change, Europe

INTRODUCTION

It has become a truism in policy debates on water resources management, often stated to rhetorical effect at public events, that the greatest challenge to providing water and sanitation services today is not so much technical as organisational and institutional.¹ Globally, we avail of the expertise to tackle all but the most intractable technical problems in providing adequate drinking water and securing a healthy environment. Problems in rendering water services more sustainable – economically and socially, as well as environmentally – relate far more frequently to organisational issues, such as unsuitable legal frameworks, incompatible actor interests, or inadequate economic incentives. The way we organise water has become central to the global debate on sustainable water management, not only because of its growing recognition vis-à-vis technical solutions but also because the organisation of water is a highly contested issue.

Efforts to improve the organisation of water and sanitation services conventionally focus on a core actor triad: the service provider (generally utility companies), the consumer (household, business, and agricultural users of water), and the service regulator (public or quasi-public bodies responsible for

¹ For instance at the 4th World Water Forum in Mexico City in March 2006 (WWC, 2006).

ensuring services meet specified norms). Policy reforms are generally directed at one or more of these actor groups, creating or strengthening incentives to promote the more sustainable use of water resources, however defined. For instance, they may require utilities to publish their infrastructure investment plans, endow regulators with powers to charge for unacceptable pollution levels, or encourage consumers to save water via modified price mechanisms. How far such incentives targeted at the service providers, users, and regulators actually have the desired effect, however, is a moot point. The reality of policy delivery appears to be much more complex, messy, and contested than the assumptions underpinning many institutional reforms would suggest.

Previous research by the authors into the practices of organising water suggest at least three important reasons for the need to look across and beyond the classic triad of provider/user/regulator when exploring ways of making water services more sustainable (Guy et al., 2001). *Firstly*, we need to develop a better understanding of the relationship *between* these three actor groups. This applies in particular to the structures, modes, and politics of their interaction and critical areas of contestation. Intermediation between service providers, users, and regulators is gaining in importance as their interdependency increases. *Secondly*, we need to consider the emergence of new actors and new functions in the wake of the current transformation of the water services sector. Processes of commercialisation, ecological modernisation, and the reconfiguration of the state, inter alia, are opening up the management of water infrastructure systems to different types of organisations working in-between the service providers, users, and regulators as well as beyond, linking water to other policy issues and social practices. *Thirdly*, the interfaces between actors of water management and the physical, social, and cultural contexts within which they work is proving a promising line of investigation for revealing important, new characteristics to the way water is organised today (cf. Swyngedouw, 2004; Kaika, 2005).

This paper uses the concept of 'intermediaries' to explore these hidden and neglected relationships between different actor groups and between actors and the contexts within which they operate.² It is a study of boundary work within and across the water sector conducted by individuals and organisations specialising in intermediation, whether between actors, territories, political agendas, or social practices. Examples range from business consultants or research organisations 'translating' novel environmental regulations into practice to non-profit agencies brokering new forms of market regulation, from information campaigns encouraging greater resource efficiency to innovation networks improving communication flows between technology providers and users. Common to all these kinds of actors is the intermediary nature of the work they do. Whether facilitating dialogue, providing guidance, bridging gaps, advocating reform or pioneering novel forms of interaction, their arenas of action are defined by their 'in-between-ness', cutting across the provider/user/regulator triad. We might expect, then, that intermediary organisations, by virtue of their ability to transcend boundaries and reconfigure relationships, have considerable capacity to shape the way water is organised to potentially beneficial effect, helping translate strategies for sustainable water management into practice.

The paper tests the validity of this initial assumption with conceptual reflection and empirical evidence relating to the role of intermediary organisations operating in the water services sector in Europe. It addresses the following questions: firstly, how can the concept and practice of intermediaries inform our understanding of how water is organised? Secondly, what is the nature of intermediation in the water services sector: i.e. how do intermediary organisations work? Thirdly, what kinds of impacts do intermediaries have on the way water is organised and how can this knowledge be used to improve water policy delivery? The paper is based on findings from an international research project investigating the emergence, activities, and impacts of intermediary organisations affecting water management in seven urban regions across Europe – Berlin, Budapest, Copenhagen, Manchester, Newcastle, Sofia and Volos (Greece) – and funded by the European Commission under the 5th

² It is important to distinguish the term 'intermediary' from that of 'mediator' or 'facilitator'. Intermediaries, as will be demonstrated, may well mediate or facilitate, but they do not occupy a neutral position in dealing with other actors.

Framework Programme.³ It draws on a number of products from the project, in particular for the empirical examples of intermediaries. These include published papers (Marvin and Medd, 2004; Beveridge and Guy, 2005; Medd and Marvin, 2008b), the final report of the EU project available online,⁴ the project website⁵ (designed as an online educational programme on intermediary awareness), and a selection of unpublished papers (Moss and Wissen, 2005; Beveridge and Guy, 2008; Medd and Marvin, 2008a). This study represents, as far as we can ascertain, the first systematic analysis of intermediaries of water management worldwide. The following paper summarises the principal findings of this research with particular emphasis on its implications for water policy delivery.

The article begins by setting interest in intermediaries in the context of water policy debates internationally and in Europe in particular. The purpose here is to illustrate the relevance of intermediaries to widely acknowledged, but imprecise and contested, core principles for organising water effectively, arguing the case for opening up the institutional framing of water management to take account of intermediation. The following section explores the concept of intermediaries as used in a variety of literatures and policy fields, introducing us to a broad spectrum of intermediary organisations and functions. Here we argue that intermediaries are defined by the relations within which they are formed, rather than by particular organisational characteristics. We subsequently investigate the work intermediaries perform in the water services sector, using illustrative examples drawn from an inventory and case studies of intermediaries from across Europe. This empirical analysis draws out the roles intermediaries play in bridging utilities, consumers, and regulators, working across different scales, and translating technology into particular social contexts. We then assess the potential significance of intermediaries for delivering on policy objectives, highlighting their potential role in relation to governance, innovation, and learning processes in the water sector. We conclude by drawing policy implications on the potential value of intermediaries for promoting more sustainable water management and ways (and difficulties) of enrolling them to this end.

THE WATER POLICY CONTEXT OF INTERMEDIARIES

The paradigm of Integrated Water Resources Management (IWRM) has, in the words of Ken Conca, become "*the* discursive framework of international water policy" since the late 1990s (Conca, 2006; cf. Allan, 2006). Defined as "the coordinated planning and management of land, water, and other environmental resources for their equitable, efficient, and sustainable use" (Calder, 1999), IWRM comprises essentially three dimensions. It is a) multi-functional, addressing the full range of water uses, b) multi-sectoral, considering interplay with other policy fields and practices, and c) multi-scalar, reflecting the interaction between local, regional, national, supranational, and global levels of action (Conca, 2006). By virtue of this holistic approach to water management and its generalist claims, IWRM has become not only the prime frame of reference for global water policy debates, but also an umbrella concept for a wide range of water management principles. These include, primarily, the need to manage water across whole river basins, to encourage greater and broader participation in decision-making processes, to make water management more transparent and accountable, to raise the cost-efficiency of water infrastructure investments, and to encourage wider application of market incentives in water resources management (e.g. UNESCO-WWAP, 2006; cf. Falkenmark et al., 2004; Molle, 2008).

These principles are echoed in important EU policy documents relating to water management. The Water Framework Directive (WFD) of 2000 institutionalises river basin management planning, stipulates stakeholder participation in the planning procedure and introduces the principle of full-cost recovery to water services and of cost-efficiency to the measures for meeting the environmental objectives (EC,

³ RTD project "New intermediary services and the transformation of urban water supply and wastewater disposal systems in Europe", see www.irs-net.de/intermediaries/ (accessed 4 June 2008)

⁴ www.irs-net.de/texte/intermediaries/DetailedReport.pdf (accessed 4 June 2008)

⁵ www.roark.dk/intermediaries/ (accessed 4 June 2008)

2000). The Sixth Environment Action Programme for the years 2001-2010 calls for a more strategic approach to policy implementation, specifying the need to integrate environmental concerns into other policies, to work closer with the market, and to empower people and help them change their behaviour.⁶ The White Paper on Services of General Interest, covering inter alia water and sanitation services, formulates a number of guiding principles, including achieving public service objectives within competitive open markets, increasing transparency, ensuring cohesion and universal access, and maintaining a high level of quality, security, and safety (CEC, 2004).

As several critics have argued, many of these principles for organising water, whilst laudable in theory, prove problematic when it comes to translating them into practice. Firstly, being wide-ranging and ambitious, they demand substantial adaptation of the structures and processes of existing institutional arrangements for managing water. The difficulties encountered in generating the necessary institutional change to meet the letter and spirit of the WFD in several EU Member States is a case in point (Page and Kaika, 2003; Moss, 2003; Ioris, 2008). Secondly, being general and imprecise, the principles are very open to interpretation. Participation, for instance, can range in the eyes of different stakeholders from enrolling a select number of key players behind a particular decision to opening up the whole decision-making process to multiple tiers of stakeholder interaction (Kastens and Newig, 2008). Thirdly, although many of the principles are suggestive of common values, they often conceal high degrees of contestation (Allan, 2006; Conca, 2006; Swyngedouw, 2004). The current global (and European) dispute over water as a public and an economic good and what this means for private sector involvement is just one illustration of this (Mehta, 2003; Bakker, 2003; Balanyá et al., 2005). Fourthly, the principles are often applied in policy contexts characterised by a statist approach to policy implementation, strong trust in scientific rationality, and an orientation around fixed territorialities which are not conducive to their effective application (Conca, 2006, referring to IWRM). As Jerome Delli Priscoli writes: "The reality of river basin management goes beyond notions of unified administration and rational analytic models to one of facilitated dialogue and negotiation among stake-holders in the basin" (1996).

It is against this ambitious, but also ambiguous, water policy agenda that the potential value of intermediary organisations for sustainable water management takes on particular significance. The hallmarks of IWRM – working across diverse policy sectors and scales and considering multiple functions of water – are essentially about intermediation, calling for organisations with the skills to operate effectively between different actor groups, mindsets, or contexts of action. Processes of institutional change initiated by IWRM-inspired reforms are increasingly reliant on those capable not only of recognising the openings they create but also of understanding ways in which current organisational arrangements are able to adapt to the new challenges. Intermediaries may be amongst those best able to translate IWRM principles into everyday practices of water management. In doing so, they will of course be pursuing their own interpretations of what the principles mean, acting not just as neutral mediators but as players with their own agendas. Their relational positioning could be instrumental in helping resolve issues of contestation, but it is also conceivable that they seek to maintain divisions and thus their own special role in working across them. At the very least, intermediaries could be expected to facilitate dialogue and negotiation amongst stakeholders of water management.

Moving from the global discourse on IWRM to water policy in Europe, we can observe how recent reform initiatives and transformations to the way water is organised are lending additional weight to the case for taking account of intermediaries and intermediary space. The Water Framework Directive (WFD) represents the EU's most ambitious attempt to date to generate more integrated and holistic water strategies. While the WFD pays considerable attention to the role of consultation with stakeholders in planning processes and to cross-sectoral and multi-scalar interdependencies, the emphasis of implementation nonetheless centres on the river basin management plan and the

⁶ <http://europa.eu.int/scadplus/leg/en/lvb/128027.htm> (accessed 2 May 2003)

competent bodies charged with devising and implementing it. Consequently, integration is generally interpreted to mean enrolling key representatives of the relevant agencies and actor groups and keeping the general public informed (Moss, 2003; Page and Kaika, 2003). Underlying this procedure is a basic assumption that the actors involved can be readily identified and ascribed particular tasks of policy delivery based on their clearly defined roles. We argue that more attention needs to be given to organisations that lie outside the traditional categories of water users, managers, and regulators, and yet which can play a significant role in implementing the environmental objectives of the WFD.

Turning to water supply and sanitation services in particular, we can note in the public debate a similar categorisation between producers, consumers, and regulators. As with other areas of networked infrastructure management, the organisation of water has traditionally been analyzed in terms of a distinction between the interests of supply, or production, on the one hand and demand, or consumption, on the other, with recent additional attention paid to regulation (of quality, prices, investment levels, environmental impact, etc).⁷ However, as recent historical and comparative research demonstrates, attempts to constitute different organisational arrangements (e.g. privatisation, liberalisation) and technical solutions (e.g. metering) on the supply side are closely entwined with the identities and practices of users (Rohracher, 2003; Southerton et al., 2004; Trentmann, 2006). The focus of attention in research and policy is increasingly around important tensions in the relationship between utilities companies, consumer needs, and regulation processes (see for example Bakker, 2003; Mohajeri et al., 2004; Swyngedouw, 2004; Bakker, 2008). Recent shifts in the way services for water and sanitation are organised and provided – in response to regulatory, environmental, social, and commercial pressures – are making utility markets more differentiated and utility services increasingly diverse (Graham and Marvin, 2001). As a result, relationships between utility companies, consumers, and regulators are changing and new actors are emerging to take on functions which mediate between and beyond the core actor triad. It is postulated here that such shifts in actor relations and roles are affecting significantly the relationship between socio-technical networks and the localities they serve (Guy et al., 2001).

We maintain, therefore, that the increasingly complex challenges of making water management more sustainable – environmentally, economically and socially/culturally – require a more critical and detailed understanding of the socio-technical organisation of water and, in particular, of the diversity of actors involved in shaping water consumption and wastewater production. In particular, we argue, these developments are creating new openings, or spaces, within and beyond the production/consumption/regulation triad. What, then, is the nature of these intermediary spaces and what sort of work takes place within them? Before we address intermediation in the water sector, we seek empirical and conceptual inspiration from a growing literature on intermediaries in other policy fields, the purpose of the following section.

THE CONCEPT OF INTERMEDIARIES

The term 'intermediaries' is used increasingly to describe organisations operating in-between other actor groups, but there exists no common conceptual understanding or even an agreed definition of what intermediaries are. In a literature review conducted in the framework of the research project on which this paper is based, Medd and Marvin (2008a) identified a variety of ways in which the concept of intermediaries has been used across a range of disciplines and policy fields. They found research applications of the term intermediaries in relation to the following: the 'social intermediaries' blurring the distinction between economy and society (Piore, 2001); 'cultural intermediaries' changing relations of mediation between culture and economy (Cronin, 2004); 'market intermediaries' within the context of shifting relations between production and consumption (Randles et al., 2003); 'systemic intermediaries' enabling the emergence of new modes of systems innovation (van Lente, 2003); 'labour

⁷ Examples include the EU-funded research projects WATER 21, EUROMARKET and AQUALIBRIUM.

intermediaries' addressing labour market restructuring (Kazis, 1998); 'knowledge intermediaries' within the new knowledge economy (Iles and Yolles, 2002); 'welfare intermediaries' enabling joined-up working in social welfare (Allen, 2003); 'planning intermediaries' facilitating the coordination of public-private initiatives in town centre management (Paddison, 2003); debates on intermediation, re-intermediation and disintermediation in relation to 'financial intermediaries' (Allen and Santomero, 1998), 'commercial intermediaries' (Brousseau, 2002), and 'information intermediaries' (Ehrlich and Cash, 1999).

The review revealed that across different disciplines the concept of 'intermediary' is used to explain diverse types of actors. For example, the intermediary is sometimes the individual actor, as in Allen's (2003) work on the floating support worker or Paddison's town centre manager (Paddison, 2003). Organisations themselves may be seen as an intermediary, for example Allen and Santomero's (1998) financial brokers and banks or Randles et al.'s (2003) market research organisations. The intermediary may even be more of a network, as van Lente et al.'s (2003) example of the Californian Fuel Cell Partnership. Institutions themselves may be considered as intermediaries (e.g. Piore, 2001). Indeed, the intermediary may refer more to a programme of work, as in the case of Iles and Yolles's (2002) study of a technology translator training project. Clearly, intermediaries can take different forms. Indeed, in their study of information intermediaries, Ehrlich and Cash (1999) argue that information intermediaries include "journalists, reviewers, librarians, customer support representatives and anyone who acts on behalf of another person to find, filter, sort and interpret existing information" (p.148). Similarly, Piore (2001) refers to a range of institutions: trade unions, governmental organisations, cooperatives, household enterprises, religious institutions, and networks (based on profession, business, race, gender, ethnicity, and religion). What is clear is that the definition of an organisation as an intermediary refers to the character of the work they do rather than the characteristics of the organisation itself. It is the work that an actor, of whatever form, performs that constitutes it as an intermediary.

Central to our approach in this paper, therefore, is the need to understand the relational character of intermediaries: they are defined by the relations within which they are situated, rather than by a particular organisational characteristic or form. This enables us to situate organisations that may previously have been classified within the broad remit of 'stakeholders' within a more specific set of dimensions. For example, unlike, say, the definition of NGOs or SMEs which refer to their status defined in legal terms, an intermediary is an organisation defined by its position within a particular set of relationships. Whether an organisation is an intermediary or not will therefore depend on how the particular work of the organisation is situated in relation to other actors. This may mean the work is not intentionally intermediary. Organisations which deliberately and exclusively perform intermediary tasks are rare. On the other hand, there are organisations which we might term strategic intermediaries, in the sense that they are deliberately undertaking work in order to work across a particular set of relationships to a particular end (Marvin and Medd, 2004).

In setting out this understanding of intermediaries, the authors are aware of its obvious connectivity to a wide range of other literatures dealing with actor relations, whether relating to policy networks, multi-level governance or multi-actor systems. Within the scope of this paper we choose, however, to focus on the literature explicitly addressing the term 'intermediary' and refer for further conceptual elaboration to other publications from the research project (e.g. Marvin and Medd, 2004, 2008b; Beveridge and Guy, 2005; Moss, 2009).

INTERMEDIARY WORK FOR WATER

On the basis of this conceptualisation of intermediation we developed the following working definition of intermediaries to guide our research in the water sector: "organisations that act in-between the traditional relationships between utilities, regulators, and consumers to enable the uptake of new technologies and changed social practices within the production/consumption nexus with the capacity

to reshape the intensity, timing, and level of water use and wastewater production".⁸ Following this definition, an inventory of 113 intermediary organisations from seven European countries was compiled as an exploratory step in the empirical research.⁹ An initial analysis of this material revealed in the first instance a rich variety of intermediary activities in water management. These were summarised as:

- providing educational and technical support on all aspects of water management
- building partnerships and initiating dialogues to improve water services
- creating new markets around innovative products and services
- lobbying for reforms to water management institutions
- brokering agreements between different stakeholders
- working across different territories of water management
- mobilising interest and support for water protection
- operating information portals for the general public
- highlighting deficits in water and sanitation services
- monitoring the performance of utility companies
- facilitating the dissemination of resource-saving technologies
- advancing alternative discourses on water management
- enrolling technical and managerial experts to address specific problems
- coordinating funding programmes in research and development
- organising initiatives and campaigns around water issues
- engaging to resolve water conflicts
- raising awareness of environmental, social or institutional issues
- making water more visible to providers and users
- linking water management to other policy issues

To help structure this rich diversity of activities we identified simple categories of intermediaries according to particular types of intermediary work in the water sector, as follows:

1. bridge-builders, mediators, go-betweens, or brokers, facilitating dialogues, resolving conflicts, or building partnerships
2. 'info-mediaries', disseminating information, offering training, and providing technical support
3. advocates, lobbyists, campaigners, gatekeepers, or image-makers, fighting for particular causes
4. commercial pioneers, innovators, and 'eco-preneurs'

These categorisations proved a useful introduction to identifying essential similarities and differences between individual organisations. However, being strongly reductionist, they are not very helpful when it comes to uncovering how intermediaries work. For this purpose we drew from the inventory of 113

⁸ www.roark.dk/intermediaries/1_2_What_are_i.htm (accessed 4 June 2008)

⁹ The countries were: Bulgaria, Denmark, France, Germany, Greece, Hungary, UK.

organisations generic observations on, firstly, the contexts of intermediary emergence and, secondly, the nature of intermediary work in the water sector (on the following, Moss and Wissen, 2005).¹⁰

Contexts of intermediary emergence

How and where do intermediaries emerge? The emergence and development of intermediaries is strongly influenced by the characteristics of national, regional, and local institutions of water management, for instance in response to privatisation or re-regulation. One such example is the Berlin Centre of Competence for Water (KWB), an intermediary network created as part of the privatisation package of the city's water utility in 1999.¹¹ Comprising representatives from the water utility, local research organisations, the city-state government, and associated businesses, the KWB coordinates and funds water research and technological development in the Berlin region. Institutional restructuring in post-socialist states has stimulated the emergence of many intermediaries, often to exploit new market opportunities or to fill voids left between the dismantling of socialist structures and the creation of new state bodies. This was the case with the Bulgarian National Association on Water Quality (BNAWQ), a civil society organisation established in 1994 against the background of severe environmental problems and institutional weakness in the water sector.¹² Beyond conventional NGO services in education and awareness-raising, BNAWQ has taken on many tasks performed elsewhere by public authorities or utilities, such as training operators of sewage treatment plants and leading public debates on adaptation to European norms and standards. EU policy itself has been a further driving force behind the emergence of intermediaries in the water sector. The EU Urban Wastewater Directive was, for example, instrumental behind the launch of the project CLEVER (Coastal Liquid Effluent Volume Reduction) in the North East of England. Between 1999 and 2001 CLEVER provided SMEs in the region with knowledge on how to reduce water consumption and wastewater production, thereby meeting EU standards whilst at the same time becoming more competitive and cost-effective.

The second set of considerations concerns the ways in which organisations come to play intermediary roles. In some cases organisations might be established deliberately to perform an intermediary role. Examples include partnership organisations set up to bridge different sets of interests or to influence a wider range of stakeholders. This applies, for instance, to DYPOM, a network of water stakeholders set up in Volos (Greece) to initiate a dialogue on regional water service provision. In other cases organisations may already be in existence and deliberately shift their focus to perform an intermediary role. For example, an existing NGO may come to act as an intermediary between the water sector and a particular stakeholder group. A case in point is the Copenhagen Energy and Environmental Office (KMEK), a non-profit consultancy with a strongly ecological agenda which offers advice, initiates innovative projects, provides training programmes, and organises exhibitions to promote sustainable development, including water-saving and clean water agendas.¹³ In some cases organisations such as commercial enterprises may undertake proactive work to demonstrate the need to fulfil an intermediary function. By contrast, however, some organisations develop an intermediary role unintentionally. For example, an organisation representing the interests of residents in a condominium may find itself mediating between owners, tenants, and the utility company over the distribution of costs for water services, as demonstrated in our Budapest case study (see below).

The adaptation of organisations to intermediary roles indicates the need to understand the incremental and evolutionary nature of intermediary space. Neither the context of intermediary space nor the nature of that space itself appears to be static. It may be temporary or indeed fragile space in which intermediary work forms and then disappears. This may be a consequence of success, the loss of funding, or the result of shifting institutional contexts. Finally, we need to note that these organisations

¹⁰ Details on the intermediaries cited can be found under www.roark.dk/intermediaries/ (accessed 2 June 2008)

¹¹ See www.kompetenz-wasser.de (accessed 11 June 2008)

¹² See www.bnawq.org (accessed 11 June 2008)

¹³ See www.kmek.dk (accessed 11 June 2008)

may well be based outside the water sector. In such cases it is precisely the position within other sectors that enables them to be effective as intermediaries in water management issues, connecting water to other agendas, for example urban regeneration, climate change, or technological innovation.

The relational work of intermediaries

How do intermediary organisations work? This second question targets the relational nature of intermediary activity. Since intermediary work is defined by the relations through which it is constituted, rather than by any particular organisational form, defining these types of relations is central to understanding intermediation. On the basis of our inventory and subsequent case studies we identify four key dimensions to intermediary work in the water sector, described below.

The first dimension concerns the opening up of the relationship between utilities (production), consumers (consumption), and regulators (regulation). While this might be a simple linear form of intermediation between supply, demand, and regulation, more often than not it is a more complex set of relations. Intermediation may involve selecting out particular sets of relations on both the supply and demand side as well as, in some cases, regulation. It may be that intermediaries are working with particular sets of consumers (for example social housing tenants), or perhaps even mediating between different consumers (for example different stakeholders within a condominium). Likewise, in the sphere of production, intermediaries may be working in-between different actors. For example, building up a knowledge network for sustainable water management intermediary work may involve bringing together private sector utilities, different government agendas, and NGOs. In doing so the extent of intermediary work may well reach beyond a clear demarcation of the water sector into other arenas, such as regional development and innovation policy. Similarly, intermediary work may require building relationships between different aspects of regulation, for example between waste regulation and water regulation, working beyond the bounds of the water sector and competent bodies charged with water management and the implementation of water policy. One example is the organisation Sustainable Water Environment in Lancashire (SWEL), which liaises between the UK's Environment Agency (EA) and SMEs in the region over solutions for water pollution problems. SWEL has proved highly successful firstly by maintaining strict confidentiality in its dealings with each party and secondly by 'translating' EA policy to local businesses in ways that reflect their interests (Medd and Marvin, 2008b). Another example of intermediation between diverse actor groups is the French organisation Service Public 2000, set up in 1996 by the French Mayors Association (AMF) and the National Federation for the Management of Local Public Utilities (FNCCR) to advise local authorities on how to negotiate contracts with private companies.¹⁴ The function of this intermediary is to help offset the strongly asymmetrical relationship between powerful water companies and the small communes they serve.

In addition to mediating between production, consumption, and regulation, a second dimension of intermediary work concerns working in-between different scales, or levels, of action. This is not surprising given the context of multi-level governance structures manifest in the Water Framework Directive, but it is also inherent in the translation from strategy into practice. Working in-between scales may involve challenging existing hierarchical forms of governance in order to bring local agendas into the policy realm or it may be a case of translating national agendas of water conservation into everyday household practice. Multi-level interaction is the distinguishing intermediary feature of the Mersey Basin Campaign (MBC) in the North West of England (Medd and Marvin, 2008b). The MBC is a broad partnership of government, business, and community organisations of the Mersey basin which has proved successful in accessing different forms of funding and enrolling actors from local to regional levels around a common interest in improving the environmental quality of the River Mersey.

In working across scales and translating from strategy to practice, a third dimension of intermediation emerges: working in-between technologies and social contexts. Technological

¹⁴ See www.sp2000.asso.fr (accessed 11 June 2008)

innovations in water conservation are plenty; yet translating these into everyday contexts remains problematic. The intermediary work may involve shaping the social context to better facilitate the uptake of new water-saving technologies, for example facilitating a process of reshaping local industrial networks to enabling collective forms of conservation and recycling or linking water-saving issues to the agendas of regeneration and local communities. Several intermediaries operate at this interface between technologies, infrastructure systems, and spatial development. One example is the company BULPLAN, based in Sofia, which supports local authorities, developers, and utilities with studies and advice on how to plan urban development in ways which take adequate consideration of the limited water resources of the Sofia region, the investment needs of the infrastructure networks, and the effects of management restructuring to water services (Moss and Wissen, 2005). The environmental consultancy CookPrior in the North East of England specialises, rather, in matching innovative technical solutions to specific business contexts of wastewater management by means of close interaction and 'translation' between technology providers and users (Beveridge and Guy, 2005, 2008). This case illustrates the importance, for some intermediaries, of being able to present technologies in different ways and in a different language in order to strike a chord with the interests of each of the involved parties. Thus the environmental case for water-saving appliances may be 'translated' by intermediaries into arguments for business efficiency, technological innovation or efficient housekeeping.

THE SIGNIFICANCE OF INTERMEDIARIES

What difference do intermediaries make? Having illustrated the variety of intermediary work identified in water management in a number of European countries we now turn to examine the significance that organisations undertaking intermediary work can have for sustainable water management. This is not a case of demonstrating quantitative evidence of impact of intermediary work. The nature of much intermediary activity cannot be readily isolated and quantified. Their influence is often indirect rather than direct, for instance creating conditions favourable for technology take-up rather than installing the technology themselves. The contribution of intermediary work often lies in changing attitudes, building trust, networking stakeholders, influencing policy priorities, or bridging discourses. While it would be possible, though difficult, to give an indication of the impact of intermediary work in terms of environmental effects (e.g. promoting water saving) or even socio-economic impacts (e.g. stimulating new markets), the significance for sustainable water management lies more in the influence of intermediary work on the institutional dynamics of water management, the focus of this section.

The analysis here is based on nine in-depth case studies conducted in seven urban regions across Europe. Each of these case studies examined in detail a particular dimension of intermediation identified during the preliminary research stages as being of particular importance, as follows:

- North-West England: The Mersey Basin Campaign (multi-level partnership), Sustainable Water Environment in Lancashire (go-between) and Chemicals North West (facilitator) operating as 'strategic' intermediaries.
- Berlin: The Berlin Centre of Competence for Water networking between utilities, researchers, public administration, and local business in a post-privatisation context.
- Budapest: condominiums acting as intermediaries between the water utility and residents over issues of water pricing, cost distribution and affordability.
- North-East England: a small environmental consultancy, CookPrior, working across multiple relationships to match innovative wastewater technologies to specific industrial/business contexts.
- Copenhagen: four social housing associations promoting water-saving technologies, practices, and discourses in dialogue with residents, utilities, and local government.

- Berlin: the Potsdamer Platz development as a space for water-saving intermediaries, comprising the project management consultants (DS-Plan), building ecologists (Öko-Stadt), landscape planners (Technical University), and a green technology centre (Ufa-Fabrik).
- Volos (Greece): The Water Resources Network of Magnesia Prefecture (DYPOM) as an informal forum of key actors of water management to combat regional water stress.
- Copenhagen: The Copenhagen Environment and Energy Office (KMEK), an environmental NGO, assisting local water policy implementation by designing campaigns for local action and formulating policy demands from local needs.
- Sofia: trajectories of intermediary development in a post-socialist context, following three water service organisations – NGO, corporate and hybrid – from prototype to dissemination.

Table 1 summarises the key intermediary work revealed by each of the case studies. Here a distinction is made between what the intermediary work achieves (the means) and an indication of the impact (the ends). We interpret each in the remainder of this section in terms of their contribution to governance, innovation, and learning in water management.

Governance

In three of the case studies, the significance of intermediary work lies in reshaping the governance dynamics. In part this refers to the ways in which intermediary organisations enrolled different stakeholders. In doing so they were active in reordering the relations between them in the pursuit of particular institutional agendas, for example the implementation of the Water Framework Directive, securing public interests in a post-privatisation environment, and developing mechanisms for the socially equitable, economically sound and environmentally responsible distribution of water supply costs.

The issue in the case of the three strategic intermediaries in the North West of England – the Mersey Basin Campaign, the project Sustainable Water Environment in Lancashire and Chemicals North West – is the governance of space. The ways in which these organisations work successfully across overlapping administrative and hydrological boundaries of water management in the region challenges some powerful assumptions about how to translate regional water strategy into local practice. The study problematises the simplistic model of policy delivery founded on core institutional actors with well-defined responsibilities consulting with stakeholders to achieve consensual agreements, illustrating the limitations of this approach in practice and demonstrating the important role played by intermediaries in facilitating complex boundary work between actors and spaces.

The case of the Berlin Centre of Competence for Water (KWB) is about the governance of expertise. The KWB has created a new forum for collective action around water R&D, forging new alliances between public and private actors. It also stands as an innovative initiative to connect water research to other water-related issues, in particular innovation, regional development and environmental policy. Ultimately, however, it is a lesson in the governance limitations of a public-private initiative in which the public interest is inadequately defined and pursued and the most powerful partners shape the collaboration in their strategic interest.

The study of condominiums in Budapest as intermediaries relates to the governance of costs. In the fragmented and inadequately regulated water sector of post-socialist Budapest, condominiums are finding themselves in the position of mediating conflicts over the level and distribution of water supply costs. In seeking agreements between utility and consumers and amongst consumers in residential blocks condominiums have been active in institution-building, revealing socio-technical complexities of water pricing often hidden in the more institutionalised contexts of Western Europe. This illustrates the special value of intermediaries in transition countries in providing (perhaps temporary) responses to situations of institutional fragmentation and void.

Table 1. Intermediary impacts: the nine case studies.

Case study	What is achieved (means)	What is the impact (ends)
Governance		
North West England	The translation of strategy into practice across different scales of governance	Contributing to reduced consumption and wastewater production, and reduced pollution
Berlin (Centre of Competence)	A new partnership organisation that bridges public-private sector interests	Strengthening joint R&D in the region within a context of partial privatisation
Budapest	New mechanisms for ensuring cost recovery of water supply and affordable prices	Economic and social sustainability of systems of payment; changing water consumption patterns
Innovation		
North East England	Facilitating technological innovation through dialogue between technology providers and users	Wastewater treatment technologies contributing to reduction of pollution; cost-effective industrial processes; enabling innovations; changed perception of water
Copenhagen (social housing sector)	Facilitating the diffusion of innovations across the social housing sector by linking 'hard' and 'soft' inputs/outputs	Enabling diffusion of innovations in reducing water consumption and wastewater production to the wider social housing sector
Berlin (Potsdamer Platz)	A space creating the context for bringing actors together to enable innovation	Sustainable design/architecture; reducing consumption and pollution; new technologies
Learning		
Volos (DYPOM network)	Creating a learning network to generate communication and co-ordination of regional water sector	New mode of interaction for implementation of demand management strategies
Copenhagen (NGO)	Maintaining societal learning within changing political contexts by acting as collaborator and 'critical friend'	Reducing domestic water consumption; farming groundwater pollution; testing new technologies
Sofia	Developing the adaptive capacity of intermediaries	Public campaigns about water saving and developing new services; making costs transparent

Innovation

Three case studies addressed intermediation from the analytical perspective of innovation, examining the role of an entrepreneurial organisation, the dynamics of a social housing sector and the role of a particular project. They each have different, but complementary lessons to tell on the contribution of intermediaries to innovation in water management.

The CookPrior case underlines the contingent, fragile and messy nature of innovation. Technological innovation is not the straightforward, linear process still widely implicated in water policy. The

apparently mundane practice of getting a water technology implemented is, rather, a highly iterative, contested and unstable process. Managing this process, the study concludes, requires special skills which the developers and users of technology often do not have, but which can be provided by specialist intermediaries.

One of the Copenhagen cases reveals the innovative impact of social housing associations in promoting sustainable water technologies and practices. Through their position in the housing market, their interest in urban ecology and their appreciation of housing development as a multi-dimensional task, social housing associations have succeeded in introducing resource-saving technologies on a mass scale. Their innovative contribution lies in their ability to articulate needs and options, identify relevant stakeholders and encourage processes of learning and experimentation.

In the case of Potsdamer Platz the context for introducing a radical water recycling system – a highly commercial urban redevelopment scheme – was considerably less favourable. It required the collaborative work of several distinct intermediary organisations to shape the process on technological innovation from the original idea to application. An important key to success, the research illustrates, lay in the ability of these organisations to connect the physical, commercial, symbolic, and aesthetic dimensions of water in the process of technological design and implementation. The fact that this successful collaborative effort was not replicable in subsequent development projects is, however, indicative of the uniqueness of particular openings for action and the need to seek out and exploit windows of opportunity.

Learning

Critical to the impact of intermediaries on innovation and governance processes is their ability to learn and to promote learning amongst others. Three case studies explored how intermediary organisations contribute to learning with regard to a) inter-organisational learning within a network of water stakeholders in Volos, Greece, b) societal learning stimulated by an environmental NGO in Copenhagen, and c) cross-organisational learning along trajectories of intermediary development in Bulgaria.

The Greek case focused on the learning processes of stakeholders represented in the network DYPOM. Here, intriguingly, an initiative created with the objective of stimulating changes to the strongly hierarchical mode of water management in the Volos region ended up being more significant for generating learning within and amongst the members than in affecting any change to water governance. The modest, but in the Greek context highly significant, achievement of creating a platform for dialogue between key stakeholders of water management has enabled an intensive exchange of views in the protected setting of a semi-formalised network. This experience has generated greater awareness of the region's water problems and how other actors interpret these.

Learning processes on a societal level are the subject of the Danish study of KMEK, the environmental NGO. KMEK has proved effective in promoting improved groundwater protection and water saving by means of a dual strategy of collaboration with, and criticism of, mainstream water policy and planning in Copenhagen. It uses its self-cultivated position as a 'critical friend' to facilitate new insight about water issues in local authorities, utilities and households. KMEK does this by engaging with the prevalent 'story line' of water management but also promoting alternatives, thereby keeping the story unfinished and thus learning opportunities open.

The study of three 'chains' of intermediaries (NGO, corporate and hybrid) is about how each learns to survive in the constantly shifting and unpredictable environment of water management in post-socialist Bulgaria. It highlights not only the importance of intermediaries in mediating the rapid transformation of the water sector there, but also how the more successful intermediaries in this context are those that learn from the experiences of others and adapt to changing circumstances, reinventing themselves if necessary.

TRANSFORMATIVE FUNCTIONS OF INTERMEDIARIES

To what extent does intermediary work transform the very relations through which it is constituted? This is an important question if we want to develop an understanding of where the potential for change might lie in relation to intermediary work. On the basis of our case studies we distinguish between three generic ways in which intermediaries alter or stabilise relations. These we term networking, aligning and translating (see table 2). These categorisations represent an empirically substantiated distillation of the intermediary characteristics emerging from the initial, exploratory phase of the project – described above – and focus on intermediaries' capacity to generate change.

Table 2. Examples of the transformative functions of intermediaries.

	Networking	Aligning	Translating
Governance	Institutional capacity (KWB, Berlin)	Arbitration (Budapest)	Scale (NW England)
Innovation	Place (Potsdamer Platz)	Soft-Hard (SHS, Copenhagen)	Conversation (NE England)
Learning	Network (DYPOM, Volos)	Critical friend (KMEK, Copenhagen)	Chains (Sofia)

Instances of *networking* relate to intermediaries creating – or being created out of – a new configuration of actors with a particular collective purpose in mind. This is the case with the KWB, set up to be a collective vehicle for water research expertise in Berlin, DYPOM, the network launched as a novel platform for discussing regional water issues, and the example of the Potsdamer Platz project bringing together a group of diverse specialists to implement a water recycling system. Distinctive to this form of intermediary activity is the intention to change the context of action, if only for a short period of time (an urban redevelopment project), over a selected issue (water research), or relatively marginal to power structures (forum for discussion). For other intermediaries the focus of activity is on influencing relations rather than contexts. Intermediation here revolves around processes of *aligning* or realigning relations between actors and between themselves and other actors. Examples include: the work of condominiums in Budapest in relation to a distinct group of consumers establishing particular pricing structures that address the interests of the utility and the householders, the social housing sector in Denmark that links national concerns about water conservation with good housekeeping agendas, and the Danish NGO (KMEK) that acts as both a collaborator and critical friend to infrastructure managers. The third category of influence is processes of *translation*. Here the emphasis is on crafting particular meanings to suit particular circumstances, whether this refers to the water resource, a technology or a strategy in order to pursue certain objectives. Examples include: the intermediaries in the North West of England that translate water into different agendas at different scales, the conversational work of CookPrior in the North East of England that links technological solutions to particular business interests and the chains of intermediaries in Sofia that work across different agendas in a shifting context. Social housing associations in Denmark also translate messages on sustainability into the language of good housekeeping and KMEK is adept at framing discourses in ways which connect to, but challenge, mainstream thinking.

Our argument is not that any particular intermediary work must fit within one of these categories. Rather, the examples we use simply illustrate the dynamics. Turning to the question of change, at first sight it appears as if the intermediary activity directed at collective action is the most transformative, for example through the creation of new networks which constitute a structural change in the social organisation. The transformative power of these cases can be deceptive, however, with networks sometimes limited in the extent to which they can achieve longer term change and to which they are

transferable to other contexts. By contrast, some of the most effective intermediary work is not so much transformative as incremental. The longer term or cumulative effect of small steps taken by often rather invisible intermediaries can be quite substantial, if not particularly radical. Further still, some intermediary work – deliberately or accidentally – may not prompt any substantial change but protect the existing system. The motive can be to offer stability to an otherwise unstable situation or to protect a particular niche market or position beneficial to the intermediary itself. Of course, the conservative influence of some intermediaries, we should note, is not necessarily detrimental to sustainable water management.

In summary, intermediary work may facilitate changes to social practices and the uptake of new technologies that can reduce water consumption and wastewater production. Such impacts also have social and economic implications, including issues of equity and affordability and of regeneration and business efficiency. However, the significance of intermediaries lies in reshaping urban water governance, stimulating technical and social innovation and improving learning within, between, and beyond individual organisations. In this way, intermediary work can be situated in-between different actors within the production and consumption nexus in varying ways, sometimes seeking to transform relations, sometimes aligning different actors, and sometimes translating between them.

CONCLUDING REFLECTIONS

This paper has examined the hitherto neglected role that intermediary organisations play in reshaping the relations between the provision and use of water. We have demonstrated that, in response to new regulatory, environmental, social, and commercial pressures, the relationships between water utilities, consumers, and regulators are changing, creating openings for both new and existing organisations to take on intermediary functions in the provision of water and sanitation services. On the basis of a wide-ranging literature review on intermediaries, an extensive inventory of over 100 intermediary organisations of water management and nine in-depth case studies of intermediaries in operation across Europe, the paper has explained and illustrated the contexts of intermediary emergence, the ways they work, the functions they perform, and the impacts they can have. We have argued the case for appreciating the potential value of intermediary work, but cautioned against over-simplistic conclusions on harnessing this potential, highlighting instead the need to reframe perspectives on how water is organised to contemplate actor constellations and interactions beyond the common triad of provider, consumer, and regulator.

The argument we have presented goes some way towards providing a substantive and more differentiated understanding of the hidden strengths and limitations of intermediary work. Contrary to everyday usage of the term, intermediaries are not neutral actors. They have their own objectives and agendas, be they commercial, political or charitable. Indeed, as we have seen in some instances, intermediaries do not necessarily intend to be intermediaries but become so in the pursuit of other agendas. Intermediation is by no means always beneficial, in terms of the processes it initiates or the impacts it has. Many intermediaries are highly selective in the issues they support and the activities they perform, not able or not willing to contemplate aspects deemed peripheral to their interests. We also need to be alert to the danger of interpreting something as innovative into the essentially conventional practices of some organisations.

Intermediary work is often hidden, characterised by conversational practices that take place outside of formal water institutions. Even where structures are formed, such as networks or partnerships, it appears to be the conversations beyond these that are significant for making an impact. Sometimes the work of intermediaries remains on the margins and can be peripheral both to core water sector business and policy. Often funded through project-specific means, their work can be undertaken within a short timeframe, be characterised by unfinished business, and remain incomplete. Indeed, there is an inherent messiness to the multiplicity of relationships through which intermediaries work in iterative processes of interaction. Combined, all of these characteristics limit the ways in which intermediaries

can become enrolled into formal water policies and strategies as well as the extent to which their work can be evaluated.

Yet, it is precisely these characteristics that make intermediary work so difficult to capture that are simultaneously its great strength. Intermediaries have demonstrated an immense degree of adaptation where formal regulation and utility management have failed. Their problem-solving orientation enables them to adapt to, and address, changing agendas. It is often the inherent transience to their project-based work that makes this all the more possible, emerging in response to new needs and disappearing as needs change or the problem is resolved. Their very invisibility in these interactions is often a key asset, enabling them to work more effectively behind the scenes. By operating within diverse networks of relationships intermediaries are often able to work across different agendas, meanings, and scales of activity. Such work requires a high degree of context sensitivity that enables them to introduce technologies and change practices across a diversity of locations. These characteristics point towards the significant fluidity of intermediaries in terms of their identities, relationships, and actions. While this fluidity may appear as a limitation to the effectiveness of intermediaries, from a policy-oriented perspective they are precisely the characteristics that enable intermediaries to play significant roles in translating *in-between* strategy and practice.

The question remains, however, how policies for sustainable water management can make effective use of intermediary organisations. The findings from our research suggest that before policy makers can enrol intermediary work in all its forms, a number of shifts in perspective will be required. First, recognition is needed that intermediaries are a distinct class of actor that cut across the conventional divide between producers, consumers, and regulators and have specific characteristics that are not captured by the all-encompassing concept of 'stakeholder', as currently used for instance in the implementation of the Water Framework Directive, or by the simplistic actor triad conventionally portrayed for the water supply and sanitation sectors. Second, it should be acknowledged that the nature of intermediary work is highly context sensitive. Policy makers cannot expect a generalised model of intermediaries that can be rolled out regardless of specific socio-economic, institutional, and socio-technical contexts. Third, it follows that policy makers need to be sensitive to how, in relation to different contexts, intermediaries may be performing different roles in processes of alignment, translation, or networking, or indeed a combination of these roles. Differences between older and new Member States of the European Union are particularly stark. Fourth, recognition is needed that the value of intermediaries, as a specific class of actor, sometimes lies outside the water sector itself. This requires careful consideration of how the impact of other policy domains may be helping or hindering the emergence and performance of intermediaries working with water. Finally, most challenging of all, policy makers will need to find ways of recognising the value of processes that by their very nature cannot be rendered fully explicit. In this sense trying to measure the impacts of intermediation at best is unlikely to capture fully the benefits and added value of intermediary work and at worst may undermine the very capacity of intermediaries to do what they do best.

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